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ABSTRACT

The primary objective of the Vocational Education Evaluation Project (VEEP) is to develop a management information system for the planning and programing of vocational education. The work has been divided into a macro-system (primarily concerned with guidelines and systematic procedures at the State level) and a micro-system (emphasizing the assessing, planning, and programing of individual vocational education programs in local schools). This report presents project accomplishments within these areas: macro-system, micro-system, local evaluation, staffing, advisory committee, meetings with State staff, visits out-of-state, VEEP Library, presentations at meetings, meetings attended, and publications and publicity. Projected plans are outlined with emphasis on the macro-subsystem (including planning and the Vocational Education Reporting System) and the micro-system (program effectiveness and local evaluation components). The appendix lists 116 units completed during the year. (SC)

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Vocational Education Evaluation Project

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Virginia Polytechnic Institute and State University
Blacksburg, Virginia 24061

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Richmond, Virginia 23216

CE 000 500

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ANNUAL REPORT--FISCAL YEAR 1973

VEEP Report No. 4

September, 1973

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FOREWORD

The primary objective of the Vocational Education Evaluation Project is to develop a management information system for the planning and programming of vocational education. To facilitate the accomplishment of this objective, the work of the project has been divided into a macro-subsystem and a micro-subsystem. The macro-subsystem is primarily concerned with guidelines and systematic procedures at the state level, while the micro-subsystem is emphasizing the assessing, planning, and programming of individual vocational education programs in local schools.

Direct costs for this project were funded on a 90 percent reimbursement basis by the Division of Vocational Education, State Department of Education, Richmond, Virginia. These funds came from Part C of the Vocational Education Amendments of 1968. The remaining 10 percent of direct costs and all indirect costs were funded by the Research Division, Virginia Polytechnic Institute and State University. The Division of Educational Research and Statistics, State Department of Education, provided the data processing for the Vocational Education Reporting System.

Special gratitude is expressed to the Division of Vocational Education and the Division of Educational Research and Statistics, State Department of Education for their financial assistance and staff support.

Considerable progress has been made in fiscal year 1973 toward meeting the primary objective of the project. Annual Report--Fiscal Year 1973 summarizes the accomplishments for fiscal year 1973 and the projected plans for fiscal year 1974.

This publication is fourth in a series of publications of the Vocational Education Evaluation Project. The intent of this series is to inform educators in Virginia, as well as the nation, of the project's work.

Dewey A. Adams, Director
Division of Vocational and
Technical Education
College of Education

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PROJECT ACCOMPLISHMENTS--FISCAL YEAR 1973

Macro-subsystem

A major objective of the macro-subsystem is to establish a system to supply necessary information, and a procedure to integrate that information, for decision-making at the state level. First priority was given to the development of components to supply enrollment and follow-up information. These components were combined into what is called the "Vocational Education Reporting System."

Vocational Education Reporting System (VERS) The enrollment component of the system was field-tested during FY 1972 in 16 schools involving about 11,000 students. Since no major problems were discovered, steps were taken to implement this component statewide during FY 1973. This involved sending materials to reporting system coordinators in each school division, providing training sessions for the division coordinators, and presenting the system to vocational education teachers at their summer conferences. During the 1972-73 school year, information was collected from an unduplicated total of 202,911 secondary vocational education students. The component seemed to work well in that preliminary enrollment information was available much earlier than in previous years. The time required by supervisors in collecting and tabulating data has been greatly reduced. The enrollment data have been stored on computer tape and the information needed for OE enrollment reports will be tabulated and provided directly from the computer. The enrollment component was generally well received by teachers and others involved in its operation and use. The few complaints that did occur probably can be attributed to unfamiliarity with the procedures used or to a reluctance to accept change.

The follow-up component of the system was field-tested during FY 1973. Students to be followed-up were identified from the enrollment field-test file.

It was found that 1,982 students from the 16 schools had completed the program requirements and left school, or left prior to normal completion, with a marketable skill. Address labels for these students were printed by the computer. Two types of cover letters and two types of follow-up forms were prepared. The letters differed in the arrangement of information in them; the forms differed with respect to a structured vs. non-structured question dealing with an overall evaluation of the students' former schools. The former students were divided into four groups using a systematic sampling procedure, and an appropriate letter and form was mailed to each student. They were requested to return the form in a business reply envelope.

After two reminders, 1,338, or about 69 percent, of the students completed and returned the form. Replies were not received from 70 students because they had moved without leaving a forwarding address, their original address was wrong, or they were not vocational education students. An analysis revealed that the different cover letters and forms did not make a difference in the percentage of the forms returned. An analysis of the responses to the items in the form suggested that some of the items needed rewording. The revised instrument is ready for use statewide in the fall of 1973.

A new numbering system was devised for the VERS forms. The first digit in the number refers to the type of form and the second digit indicates revisions in the form. The new numbers are as follows: VERS 1.1--Virginia Vocational Education Student Enrollment Form; VERS 2.1--Virginia Vocational Education Adult Enrollment Form; VERS 3.1--Virginia Vocational Education Program Termination or Completion Form; and VERS 4.1--Virginia Vocational Education Follow-up Form. Minor modifications have been made in the enrollment forms as a result of the first year of statewide use. For use in FY 1974, 475,000 VERS 1.1 forms were ordered.

Planning System A review of literature was conducted which determined that the common variables across many planning models are: manpower demand, student demand, and cost of programs. Quite often planning is referred to as the allocation of resources.

Several alternative approaches and planning models were explored. Primary concern of these models have been (1) generation of vocational education programs, and (2) resource allocation to the programs. In this direction two facsimiles of data collection instruments were developed. One instrument collected manpower demand projection information. The second form measured the program capacity in terms of number of students.

Several agencies in the state were contacted to supply information on manpower demand projections. It became apparent that a procedure was necessary to streamline the manpower projection dissemination system to localities. Procedures are being explored for such action. New funding procedures under development in the State Division of Vocational Education may redirect thinking on the planning system.

Micro-subsystem

Program Effectiveness Component In August 1972, a workshop for agricultural education teachers was held. Nineteen teachers participated and wrote units in a variety of areas chosen from the state curriculum guide.

During the 1972-73 academic year, each teacher who had participated in either of the two 1972 summer workshops worked on another unit of instruction. Dr. Hill met with each of these teachers twice during the fall at meetings in nine locations throughout the state. The purpose of these meetings was three-fold: 1) to review the techniques of writing behavioral objectives and test items which had been learned at the summer workshop; 2) to teach the participants more about the uses of item analysis information; and, 3) to collect the

intermediate work of the materials being produced by the teachers. This helped to insure that the work was being completed on schedule, and that everyone was proceeding in the proper direction.

The payoff from these efforts was quite high. Most teachers completed their second unit, thus bringing the total number of units completed before the June 1973 workshop to approximately 150 (see Appendix).

It became clear during the past fiscal year that there were not sufficient resources to cover a wide variety of vocational education programs. Therefore, the decision was made to focus our efforts on the following areas:

Business--Stenographic Block
Consumer and Homemaking--Cultural Development
Trade and Industrial--Auto Mechanics and Drafting
Agriculture--Recreation

An invitation to attend the 1973 summer workshop was sent to teachers who met two criteria: participation in the 1972 summer workshop, and involvement in one of the selected topic areas. A total of 29 teachers attended the June workshop; an additional 11 are anticipated for the August workshop. The teachers needed very little instruction, since they had been trained the previous summer; thus, the work proceeded very smoothly. The entire stenographic block and the auto mechanics area were completed. The first year of the drafting course and the cultural development course was completed, with some work done on the second year. Considerable time was spent revising the units completed previously in all areas.

Another effort during the year was the attempt to tell more educators about Behavioral Objectives Organized in a System for Teachers (BOOST), so that a broader base of people would be willing to request support for it. One major activity in this area was the development of a tape-slide presentation designed to demonstrate the need for BOOST and show how it can be used. In addition, talks were presented to teachers in Prince William County and Norfolk, State

Department of Education personnel from several Southern states at the Southern States Council on Educational Research and Statistics Conference, and a wide variety of current and future teachers taking courses at VPI & SU.

An alliance with Project CAREER in Randolph, Massachusetts was developed during the year. VEEP exchanged all of its materials with Project CAREER and, although neither party was able to make direct use of the exchanged materials, the effort should facilitate further work.

Process-Product Component A study was initiated to compare the traditional vs. the block stenographic programs in business education. The study is being directed by one of the GRA's.

Cost-Effectiveness Component Another GRA completed a search of the literature currently available concerning cost-effectiveness of vocational education programs.

Local Evaluation

The Standards of Quality and Objectives for Public Schools in Virginia, 1972-74 set forth definite standards to guide the division superintendents in developing the planning capabilities in their divisions. To assist the superintendents in meeting these standards, the Division of Vocational Education, State Department of Education, assigned the Vocational Education Evaluation Project to develop a systematic procedure for evaluating and planning local vocational education programs. This assignment consisted of two phases. The first phase was an annual evaluation and planning procedure developed and field-tested in the spring of 1973. The second phase, a comprehensive five-year evaluation and plan, will be developed later.

The Local Evaluation is a systematic procedure for the evaluation of vocational education in the school divisions of Virginia. This procedure is a means of determining if vocational education is meeting the needs of all youth

and adults. The emphasis is on the total offering of vocational education by the school division rather than by individual vocational services.

Decisions by committees with individual input are important in evaluation. The recommendations and plans developed by this procedure are based on the work of committees at the vocational department level within a school, at the school level, and at the division level. All vocational teachers and supervisory staff will have a direct input by completing the Guidelines for Local Evaluation. Through the use of advisory committees, students, former students, employers and other lay persons of the community will be active participants in the evaluation of the local vocational education programs.

A procedure for evaluating local vocational education programs was developed and field-tested in four school divisions at the end of April, 1973. Results of the field-test were received in June.

Staffing

There were no changes in the professional and classified staff. One graduate research assistant (GRA) resigned at the end of August after completing his residency and was replaced in September. Another GRA resigned at the end of June and will be replaced during the next fiscal year.

Advisory Committee

Dr. Richard M. Jaeger, associate professor of education, College of Education, University of South Florida, Tampa, Florida, became the seventh member of the committee. The continuing members of the committee include:

Dr. David Berliner, Far West Laboratory for Educational Research and Development, San Francisco, California.

Dr. Leonard S. Cahen, Educational Testing Service, Princeton, New Jersey.

Dr. Jimmie C. Fortune, Educational Testing Service, Princeton, New Jersey. (joined VPI & SU College of Education staff, June 1973)

Dr. Ferman B. Moody, Research Coordinating Unit for Vocational Education, Harrisburg, Pennsylvania.

Dr. Jerome Moss, Jr., Research Coordinating Unit for Vocational Education, Minneapolis, Minnesota.

Dr. Milton Phillips, College of Education, Memphis State University, Memphis, Tennessee.

Two meetings of the advisory committee were held during the year. The major discussions at the November meeting were on the continued development of objectives and achievement tests and the follow-up of vocational students. In May the group concentrated on the validity of the objectives, planning models, and local evaluation procedures.

Meetings With State Staff

During the year, seven meetings were held in Richmond with staff members from the Division of Vocational Education and from the Division of Educational Research and Statistics. These meetings were held for the purpose of providing the Department of Education staff members with progress reports and give them an opportunity to have direct input into the project.

Visits Out-of-State

Dr. Vivekananthan and Dr. Elson consulted with members of the Pennsylvania Department of Education, Harrisburg, Pennsylvania and personnel in the U. S. Office of Education, Washington, D. C. concerning the development of VERS. Dr. Hill discussed the development of objectives and cooperative efforts with Project CAREER at Randolph, Massachusetts.

VEEP Library

A continual search is made for literature and materials related to the work of the project. Materials are now on file from the Department of Education

of various states, the U. S. Office of Education, and other major projects throughout the nation.

Access to the ERIC system has been made available to VEEP through the Research Utilization Project in the College of Education, Virginia Polytechnic Institute and State University. Microfiche and hardcopy related to the various components of the project are being collected and filed for reference.

Presentations at District, State, Regional, or National Meetings

District

8/15-24/72 -- "Vocational Education Reporting System (VERS)," six district meetings of local VERS coordinators at Glade Spring, Vinton, Harrisonburg, Danville, Norfolk, and Fredericksburg, Virginia. (Oliver and Carl Jorgensen, Coordinator of Vocational Education Research and Statistical Information, State Department of Education)

7/24/72 -- "Meeting the Challenge of Individualizing Instruction," Prince William County Vocational Education Conference, Manassas, Virginia. (Hill)

9/5/72 -- "BOOST and Home Economics Education," Norfolk Home Economics Education Conference, Norfolk, Virginia. (Hill)

State

7/13/72 -- "Review of Vocational Education Reporting System," annual conference of Virginia instructors of Agricultural Education, Blacksburg, Virginia. (Oliver)

8/1-2/72 -- "Vocational Education Reporting System" and "Behavioral Objectives Organized in a System for Teachers," Trade and Industrial Education Conference, Roanoke, Virginia. (Oliver)

8/10/72 -- "Vocational Education Reporting System," Virginia Vocational Home Economics Education Conference, Roanoke, Virginia. (Oliver)

8/10/72 -- "Program Effectiveness Component of VEEP," Virginia Vocational Home Economics Education Conference, Roanoke, Virginia. (Elson)

10/9/72 -- "Evaluation Strategies for Occupational-Technical Education," New Horizons in Community College Occupational-Technical Education Conference, Blacksburg, Virginia. (Oliver)

1/5/73 -- "Vocational Education Evaluation Project," winter meeting of the Virginia Association for Educational Data Systems, Richmond, Virginia. (Oliver)

1/10/73 -- "Vocational Program Evaluation," meeting of the state supervisory and teacher education staffs of Agricultural Education, Blacksburg, Virginia. (Oliver)

Regional

7/28-30/72 -- "Developing a Statewide Evaluation System for Vocational-Technical Education," annual meeting of Southern States Council on Educational Research and Statistics, Key West, Florida. (Hill)

7/28-30/72 -- "VERS--A Component of a Management Information System for Virginia," annual meeting of Southern States Council on Educational Research and Statistics, Key West, Florida. (Vivekananthan)

National

2/22/73 -- "Techniques in Evaluating Vocational Education Programs in Virginia," National Association for Business Teacher Education Convention, Chicago, Illinois. (Oliver)

2/26/73 -- "Vocational Education Reporting System: A System to Collect Evaluative Information," annual meeting of the American Educational Research Association, New Orleans, Louisiana. (Elson, Vivekananthan, Hill, and Oliver)

Other Meetings Attended

10/20-21/72 -- Virginia Vocational Association, Arlington, Virginia. (Oliver)

11/29-12/1/72 -- American Vocational Association Presession Research Training Program, Chicago, Illinois. (Elson and Oliver)

12/1-5/72 -- American Vocational Association and meetings of affiliated organizations, Chicago, Illinois. (Elson and Oliver)

3/9-10/73 -- Virginia Vocational Association, Williamsburg, Virginia. (Elson)

Publications and Publicity

Journal Articles

"Meeting the Needs of Students with Improved Behavioral Objectives," The Journal of the National Association of Colleges and Teachers of Agriculture. Vol. XVI, No. 3, September 1972. pp. 69-70. (Elson)

"Placement and Follow-up: Who Should be Responsible," guest editorial, The Agricultural Education Magazine, 45:12:267-268, June 1973. (Oliver and Elson)

"Organizing Behavioral Objectives for Teaching," article submitted for publication in mid-year issue of the Journal of the American Association of Teacher Educators in Agriculture. (Elson and Oliver)

Publications

"Annual Report - Fiscal Year 1972," VEEP Report No. 3. (Staff)

"Virginia Vocational Education Reporting System TEACHER'S GUIDE," - 1973 (Staff) (in press)

Radio and Press Release

Two tapes were made for statewide distribution to radio stations. Articles were submitted through VPI & SU Information Services for distribution to newspapers throughout the state.

Slide-Tape

A slide-tape presentation is being developed which will explain the need for properly writing behavioral objectives and the various aspects of the BOOST system.

RELATED ACCOMPLISHMENTS--FISCAL YEAR 1973

Presentations

2/26-28/73 -- "How to Build a Simulation Model - A Computer Language Approach," annual meeting of American Education Research Association, New Orleans, Louisiana. (Vivekananthan)

2/26-28/73 -- "Estimating Total-Test Score Distributions Through Item Sampling--A New Theoretical Approach," annual meeting of the American Educational Research Association, New Orleans, Louisiana. (Hill)

6/21-22/73 -- "EDP Needs in Virginia and Approaches to Fulfilling Them," annual conference of Virginia Association of Educational Data Systems, Richmond, Virginia. (Vivekananthan)

Publications

"Farm Machinery Performance and Costs," Publication 510. Extension Division, Virginia Polytechnic Institute and State University, August 1972. (Oliver and E. S. Smith, extension specialist, Agricultural Engineering)

"A Follow-up of Former Students in a Landscape and Nursery Technician Program," The Agricultural Education Magazine, 45:6:130-131, December 1972. (Elson)

"Multiple Teacher Departments," Agricultural Education News, Vol. IV, No. 5, January 1973. (Elson)

"Estimating Farm Business Expenses," Agricultural Education, Virginia Polytechnic Institute and State University, March 1973. (mimeo) (Oliver and K. E. Loope, associate professor, Agricultural Economics)

"Career Awareness in Elementary Schools," article accepted for publication in The Agricultural Education Magazine. (Elson and Amy M. Elson, elementary teacher, Montgomery County Schools)

"A Resource Allocation Model for R & D Projects in Education," Educational Manager, 4:1:21-22, 1972. (Vivekananthan)

Other Meetings Attended

11/9-10/72 -- The Virginia Committee, Commission on Secondary Schools, Southern Association of Colleges and Schools, Blacksburg, Virginia. (Oliver)

11/3/72 -- Virginia Educational Research Association, Richmond, Virginia. (Vivekananthan)

4/3-5/73 -- Conference for interested states on the Educational Consortium: An Effort Toward Accountability?, Atlanta, Georgia. (Hill and Oliver)

4/15-18/73 -- "Vocational Education--1985," national leadership conference for the new and related services division of AVA, St. Louis, Missouri. (Oliver)

5/10-11/73 -- The Virginia Committee, Commission on Secondary Schools, Southern Association of Colleges and Schools, Winchester, Virginia. (Oliver)

5/30/73 and 6/21/73 -- Steering committee for the formation of a Multi-state Consortium to produce catalogs of performance objectives and criterion-referenced measures in occupational education, Atlanta, Georgia. (Oliver)

PROJECTED PLANS--FISCAL YEAR 1974

Macro-subsystem

Planning The Standards of Quality and Objectives for Public Schools in Virginia, 1972-74, the State Plan for Vocational Education, and studies on planning will be reviewed to determine the requirements for planning vocational education programs. Procedures and guidelines necessary for planning vocational education programs including appropriate forms and suggestions for gathering additional information, and, when possible, improving the availability of the information will be developed. Program offerings are based on the vocational education plan; however, all programs cannot be offered because of certain constraints. The constraints in the form of resources available and 'program standards' developed by the state department staff set the limits on the types of programs, number of programs, and number of students in a program.

Guidelines and planning forms prepared for use by the localities will indicate the programs, facilities, resources, and other such information. Along with the planning forms, application forms for approval by the state department will be developed. The application forms will be of two types: 1) preliminary application form for approval of programs, and 2) final application form for implementation of programs. The preliminary application form will indicate projected program information and the final application form will contain actual (implemented) program information.

Vocational Education Reporting System The enrollment component of the system was fully implemented statewide in FY 1973. No further developmental work by the VEEP staff is anticipated on the enrollment component. The coordinator of Research and Statistical Information, State Department of Education, is responsible for its operation.

The procedures to be used for the follow-up component in the fall of 1973 are not known since an effort is being made to integrate the vocational education follow-up with the one required by the Standards of Quality and Objectives for Public Schools in Virginia. If necessary, the staff will design the statewide vocational education follow-up and sampling procedure for the fall of 1973.

Related Work The staff will continue to provide assistance to the Division of Vocational Education, State Department of Education in solving immediate problems which arise. Two problems which will require attention at the beginning of FY 1974 are program standards for vocational education and allocation of resources to assist in local construction projects.

Micro-subsystem

Program Effectiveness Component The plans for the 1974 fiscal year include the joining of a multi-state consortium to develop performance objectives and criterion-referenced test items, the first attempt to put BOOST into operation, and research into the relationship between performance tests and paper and pencil tests.

The Southern Association of Colleges and Schools (SACS), Atlanta, Georgia, contracted with the State of Florida to establish a multi-state consortium for the production of performance objectives and criterion measures in occupational education. Dr. Oliver and Dr. Hill, representing the project, and Carl Jorgensen, representing the State Department of Education, attended a meeting held April 2-5, 1973 in Atlanta, at which time SACS presented the proposal for the consortium. Plans are for Virginia to become a member of the consortium. The organizational phase of the consortium will begin early in FY 1974.

Since the objectives for the entire stenographic block in Business Education have been generated, it will be possible to implement the plans for BOOST which have been outlined in other documents published by VEEP. It is intended that a pilot project will be implemented in the fall of 1973 in five schools throughout the state. By demonstrating how BOOST saves teachers time and increases student interest through evaluation which is congruent to the instruction, it is hoped that support can be generated to sustain and expand the effort.

An interesting, but as yet uninvestigated, problem is the relationship between paper and pencil tests and performance tests. Performance tests are seldom ideal, for they are frequently time consuming and unreliable. Most paper and pencil tests used in vocational education are invalid because of their irrelevancy to job-like situations. However, many skills acquired in vocational education are largely cognitive, not psychomotor. Since many experts believe that virtually any cognitive skill can be measured in a multiple-choice format, it seems reasonable to expect that a paper and pencil test could be constructed that would correlate highly with a performance test. A project to be undertaken is the construction of a performance test in selected areas of auto mechanics. An analysis will be conducted to determine the cognitive skills required to perform the tasks elicited in the performance test. Then, a paper and pencil test will be constructed to measure these cognitive skills. It is anticipated that a high correlation will be found between the two tests.

Local Evaluation Component The evaluation procedure, field-tested at the end of FY 1973, will be revised based on the input from the results of the field test, state supervisory personnel, and the VEEP National Advisory Committee. This revision cannot be completed until "Program Standards" to be developed by the Division of Vocational Education, State Department of Education, are

available. Once the standards are available, the Guidelines for Local Evaluation can be revised to incorporate most, if not all, of the standards. Statewide implementation of the evaluation procedure is scheduled for March 1974.

Staffing

There are no plans for changes in the size of the project staff. One of the secretaries will be leaving in August and that position will be filled at the beginning of September. The vacancy created by the resignation of a graduate research assistant at the end of June will be filled early in the year.

Advisory Committee

Plans call for one meeting of the Advisory Committee in December and a second meeting in May. There are no plans for changes in the composition of the committee.

Meetings With State Staff

It is anticipated that several meetings will be held with state staff members to review progress and develop plans for the various components of the project.

APPENDIX

UNITS COMPLETED DURING FY 1973

AGRICULTURAL EDUCATION

Fundamentals of Electricity -- Harry Bagnell
Paints and Preservatives -- John Dickens
Sketching and Drawing Agricultural Mechanics Problems -- Andrew L. Farrar
Small Engines -- George S. Shorter
Electrical Power and Processing -- Harry Bagnell
Tractor Maintenance -- George S. Shorter

Asexual Reproduction of Horticulture Plants by Cutting -- Robert O. Brown
Installing the Landscape -- Douglas M. Carty
Identifying Ornamental Horticulture -- Billy N. Stanger
Growing Turfs and Lawns -- Warren Wells
Designing the Home Grounds Landscape -- Douglas M. Carty
Poinsettias -- Billy N. Stanger
Plant Growing Structures -- Warren Wells

Forestry, Wildlife and Outdoor Recreation -- Wayne W. Cupp
Managing Farm Wildlife Populations -- W. B. Vincel
Improving the Quality of the Environment -- Wayne Pence

Soil and Water Management -- David V. Gibson
Basic Soils and Soil Fertility -- Carroll L. Payne
Principles and Propagation by Seeds -- Robert O. Brown
Selecting and Buying Fertilizer -- Thomas Burgess

Feeding the Breeding Herd -- Steve Hodnett
Selecting and Buying Swine -- Perry E. Roberts
Managing the Ewe Flock -- Wayne W. Cupp
Marketing Beef Cattle -- Andrew L. Farrar
Selecting and Buying Dairy Animals -- W. L. Harris
Care of Cow and Calf -- Steve Hodnett

Getting Acquainted with Career Opportunities in Agriculture -- Thomas Burgess
Selling Agriculture Products, Supplies and Services -- W. L. Harris
Providing Farm and Home Safety -- Charles L. Hoover
History, Development and Purposes of the FFA -- Wayne Pence
Keeping and Using Farm Financial Records -- Barry F. Sauls

AUTO MECHANICS

Basic Hand Tools and Measurements -- L. R. Chandler
Introduction to the Automobile -- Carlton S. Edwards
Engine Theory and Service -- James V. Giordano

AUTO MECHANICS, continued

The Fuel System -- L. R. Chandler
The Cooling System -- Carlton S. Edwards
The Starting System -- Oscar E. Patrick
The Charging System -- John Steck
Ignition System -- Herbert E. Wells
Diagnosis and Tune Up -- C. Ralph Sutherland
The Lubricating System -- James V. Giordano

Manual Transmission and Clutch Assembly -- Oscar E. Patrick
Automatic Transmission Fundamentals -- C. Ralph Sutherland
Drive Line and Differential Assembly -- Herbert E. Wells
The Brake System -- Franklin D. Amos
Suspension and Steering -- B. L. Musser

Ventilation Systems -- John Steck
General Service Procedure, Block 4 -- Franklin D. Amos

BUSINESS EDUCATION

Applying for a Job -- Lula D. Sigmon
Holding and Advancing on the Job -- Alyce Sydenstricker
Living on Your Income -- Barbara Haynes
Understanding and Using Credit Wisely -- Jean Walk
Fundamentals of Business Law, Parts I, II, III -- Marie Keenan
Planning Business Meetings and Conferences -- Frances Milstead
Types of Business Organizations -- Gay Statler
Travel Services -- Rebecca Stanley
Types of Consumer Guides -- Gay Statler

Review of Basic Typewriting Skills for Clerical Accounting, Clerk-Typist and Stenographic Block -- Jean Flemer
Review of Basic English Skills for the Clerical Accounting, Clerk-Typist, and Stenographic Block -- H. Arnito Raffo
Manuscript and Statistical Typing -- Frances Shorter
Introduction to Data Processing -- Lula Sigmon
Handling the Mail -- Billie D. Farmer
Telephone Techniques -- Jean D. Flemer
Using Reference Sources for Business Information -- Jacquelyn Harris
Writing Business Letters -- Marie Keenan
Meeting the Public in Person -- Frances Milstead
Receptionist Training -- H. Arnito Raffo

Accounting Fundamentals -- Ann C. Banks
Recordkeeping for Purchases -- Mary Cowan
Recordkeeping for Sales -- Phyllis Mosher
Cashier Records and Petty Cash -- Frances Shorter
The Checking Account and Reconciliation of Bank Statement -- Jean B. Walk

BUSINESS EDUCATION, continued

Employer-Employee Relations -- Barbara Haynes
Human Relations with Fellow Employees -- Betty Jo Robinson

Stencil Duplication -- Rebecca Stanley
Ten-Key Adding Machine -- L. Belle Tyson
Reproducer -- Phyllis Mosher
Sorter -- L. Belle Tyson

DRAFTING

Drafting Fundamentals -- Nolan D. Browning
Dimensions and Notes -- Billy J. Gilbert
Sections and Conventions -- Welch B. Johnston
Lettering and Media -- Alyce Neukirk
Shop Process and Materials -- Thomas A. Stewart
Geometrical Construction -- Arthur D. Strickland

Working Drawings -- Nolan D. Browning
Threads and Fasteners -- Billy J. Gilbert
Developments and Intersections -- W. B. Johnston
Unit-Pictorial Drawings -- Alyce Neukirk

HOME ECONOMICS

Prenatal Development and Care -- Elaine Creigh
Play, A Way of Learning -- Jan Eubanks
Play Materials for Children, 2 through 5 -- Geraldine E. Hill
Child Care -- Delphine Senn
Discipline for Preschoolers -- Lois H. Webber
Developing Creativity in Preschool Children -- Elaine Creigh
Selecting Books and Stories for Young Children -- Jan Eubanks
Literature Development for Children, 2-5 -- Geraldine E. Hill
Foods and Nutrition for Preschool Children -- Lois Webber

Personal Potential -- Sylvia Cunningham
Management in the Family -- Cynthia Harris
Extending Hospitality -- Florence Hood
The Young Consumer -- Vivian LeForge
Beauty and the Surroundings -- Roberta Minish
Responsible Consumer-Homemaker and Financial Management -- Sondra Schermer
The Homemaker and the Market Place -- Annie Fred Wright
Responsible Behavior -- Sylvia Cunningham
Individual Development Toward Maturity -- Florence Hood
The Family -- Vivian S. LeForge
Family Financial Protection -- Roberta Minish
The Homemaker-Consumer and Family Housing -- Sondra Schermer
The Homemaker and Credit -- Annie Fred Wright

INDUSTRIAL COOPERATIVE TRAINING

Money Management -- Wade Clement
Investments -- Jack Frith

Insurance -- Wade Clement
Using Personal Bank Services -- Jack Frith